GCMD Keyword Version 8.5 ESO Review Feedback

Schedule

Item	Due Date	Who	Status
Keyword Review	3/10/2017	SMEs	Done
Disposition Feedback	3/29/2017	Tyler Stevens Scott Ritz	Done
Respond to Reviewer's Feedback (Via Email)	4/5/2017	Scott Ritz	Done
Publish/Announce Keyword Version 8.5 • Keywords and Definitions in KMS • Public Announcement • Keyword Change Spreadsheet • Keyword Mapping Spreadsheet • Provider Impact Report	4/21/2017	Scott Ritz Tyler Stevens	Done
Keyword Review Process Feedback Survey	TBD	Tyler Stevens Scott Ritz	Not Started

Keyword Review Summary

Google Form: https://docs.google.com/forms/d/1G7whGGD09GEovq0f1YFKkUi_tn2ObouP0uCvYp-sWyk/edit?usp=sharing

Feedback (9 Responses): DRAFT

I. Introduction

Thank you for your participation in the review of GCMD Keyword Version 8.5. As members of the scientific community, your input their development helps ensure that the GCMD keywords can be used to accurately describe data and allow for precise search and retrieval of data. The GCMD team has reviewed all 29 feedback topics that were received from 9 reviewers (J. Scialdone's feedback included from dry-run) and provided a response to each topic in the following tables.

II. Summary

Total Feedback Topics: 30

- **Feedback Topics in agreement: 18**
- **Feedback Topics we augmented recommended changes: 4**
- **Feedback Topics where we disagree: 1**
- **General Discussion Topics: 6**
- **Needs Attention: 1**

III. Review Detail

A. Dave Connell (Dave.Connell@aad.gov.au), Australian Antarctic Data Centre

Reviewed Keyword Path	Atmospheric Winds > Local Winds > Orographic Winds > **Santa Ana Winds** Atmospheric Winds > Local Winds > Orographic Winds > **Gap Winds** Atmospheric Winds > Local Winds > Orographic Winds > **Mistral Winds** Atmospheric Winds > Local Winds > Orographic Winds > **Chinook Winds**
Reviewer Feedback	"Does each keyword listed in the keywords review spreadsheet…? NO. I disagree with the addition of “Santa Ana Winds”, “Gap Winds”, “Mistral Winds” and to a lesser extent, “Chinook Winds”. My personal feeling is that these are too specific, as they are relevant to only a small geographical area. Researchers in these areas should use a more generic wind keyword, and then qualify that with a location keyword, or an ancillary keyword. I say “Chinook” to a lesser extent, because it pertains to a much larger geographical area."
GCMD Response	We agree, “Santa Ana Winds”, “Gap Winds", “Mistral Winds”, "Chinook Winds" are too specific to a region. Keywords are more appropriately keyed in uncontrolled keyword fields Detailed Variable or Ancillary Keyword. Remove proposed new keywords: Atmospheric Winds > Local Winds > Orographic Winds > ~~**Santa Ana Winds**~~ Atmospheric Winds > Local Winds > Orographic Winds > ~~**Gap Winds**~~ Atmospheric Winds > Local Winds > Orographic Winds > ~~**Mistral Winds**~~ Atmospheric Winds > Local Winds > Orographic Winds > ~~**Chinook Winds**~~

B. Pam Rinsland (pamela.l.rinsland@nasa.gov), ASDC

First Comment

Reviewed Keyword Path	Atmospheric Water Vapor > Water Vapor Indicators > **Precipitable Water**
Reviewer Feedback	"Total Precipitable Water - New L2 categories needed to distinguish between types of precipitable water - total column vs. profile (provider:NVAP-M)"
GCMD Response	The existing Level 1 Keyword Precipitable Water and Total Precipitable Water are the same variable. Since Total Precipitable Water is more commonly used we propose renaming the existing keyword to Total Precipitable Water. Atmospheric Water Vapor > Water Vapor Indicators > ~~**Precipitable Water**~~ Atmospheric Water Vapor > Water Vapor Indicators > **Total Precipitable Water**

Second Comment

Reviewed Keyword Path	Atmospheric Water Vapor > Water Vapor Indicators > **Precipitable Water**
Reviewer Feedback	"Layered Precipitable Water - New L2 categories needed to distinguish between types of precipitable water - total column vs. profile (Provider:NVAP-M)"
GCMD Response	We agree with the recommendation to add new keyword: Atmospheric Water Vapor > Water Vapor Indicators > **Layered Precipitable Water**

Third Comment

Reviewed Keyword Path	Atmospheric Water Vapor > Water Vapor Profiles > **Water Vapor Concentration Profiles**
Reviewer Feedback	"Water Vapor Profiles > Water Vapor Concentration Profiles - Add new L2 category to profiles to represent number densities – (Provider: SAGE III)"
GCMD Response	We agree with the recommendation to add new keyword: Add new keyword: Atmospheric Water Vapor > Water Vapor Profiles > **Water Vapor Concentration Profiles**

C. Bruce Vollmer (bruce.e.vollmer@nasa.gov), GES-DISC

First Comment

Reviewed Keyword Path	Atmospheric Water Vapor > **Water Vapor Indicators (Level 1)** > ... *Ten Level 2 Keywords > Six Level 3 Keywords*
Reviewer Feedback	"It is not clear to me that the insertion of Water Vapor Indicators at Variable Level 1 really adds anything. For example, Atm Water Vapor -> Humidity is pretty clear. Some of the Variable Level 3 keywords are a good addition (Relative Humidity, Specific Humidity). These may work equally well at Variable Level 2 (Atm Water Vapor -> Humidity -> Specific Humidity)"
GCMD Response	Adding "Water Vapor Indicators" at Variable Level 1 ensures that keywords that are variables (i.e. Dew Point Temperature) and keywords that are categorizations of variables (i.e. Water Vapor Profiles) do not appear at the same level. "Relative Humidity" and "Specific Humidity" are in Level 3 because they are of a greater level of specificity than "Humidity" at Level 2. We recommend that users of the GCMD keywords display the full keyword hierarchy in their clients in order to preserve keyword relationships and context.

Second Comment

Reviewed Keyword Path	Atmospheric Winds > **Wind Dynamics (Level 1)** > ... *Nine Level 2 Keywords > Two Level 3 Keywords*
Reviewer Feedback	"Inserting "Wind Dynamics" at Variable Level 1 and bumping others down to Variable Level 2 or 3 provides for more detail but also presents a different convention of keyword specifications. Again, as long as a client or application makes the full hierarchy available then the change should be OK. "
GCMD Response	Adding "Wind Dynamics" at Variable Level 1 ensures that keywords that are variables (i.e. Vorticity) and keywords that are categorizations of variables (i.e. Surface Winds) do not appear at the same level. No change. We recommend that users of the GCMD keywords display the full keyword hierarchy in their clients in order to preserve keyword relationships and context.

D. William Rossow (wbrossow@gmail.com), City College of NY, NASA GISS

First Comment

Reviewed Keyword Path	Atmospheric Water Vapor > Water Vapor Processes > **Water Vapor Transport**
Reviewer Feedback	"Water Vapor "Transport" is not rigorous, it should be Water Vapor Flux as well as Water Vapor Convergence/Divergence."
GCMD Response	We agree with replacing "Water Vapor Transport" with "Water Vapor Flux" and "Water Vapor Convergence/Divergence" Remove existing keyword: Atmospheric Water Vapor > Water Vapor Processes > ~~**Water Vapor Transport**~~ Add new keywords: Atmospheric Water Vapor > Water Vapor Processes > **Water Vapor Flux** Atmospheric Water Vapor > Water Vapor Processes > **Water Vapor Convergence** Atmospheric Water Vapor > Water Vapor Processes > **Water Vapor Divergence**

Second Comment

Reviewed Keyword Path	Atmospheric Winds > Wind Dynamics > **Vorticity**

Reviewer Feedback	"Wind Vorticity should be split into Relative and Absolute."
GCMD Response	We disagree, this may be confusing to to users who may not understand the difference between Relative and Absolute Vorticity. Keywords are more appropriately keyed in uncontrolled keyword fields (Detailed Variable or Ancillary Keyword).

Third Comment

Reviewed Keyword Path	Atmospheric Winds > Wind Dynamics > **Vertical Wind Motion**
Reviewer Feedback	"Wind "Motion" is not rigorous, it should be Vertical and Horizontal Wind Velocity and/or Speed."
GCMD Response	We agree, we will replace "Vertical Wind Motion" with "Vertical Wind Velocity/Speed" and add new L2 "Horizontal Wind Velocity/Speed". Remove existing keyword: Atmospheric Winds > Wind Dynamics > ~~**Vertical Wind Motion**~~ Add new keywords: Atmospheric Winds > Wind Dynamics > **Vertical Wind Velocity/Speed** Atmospheric Winds > Wind Dynamics > **Horizontal Wind Velocity/Speed**

Fourth Comment

Reviewed Keyword Path	Atmospheric Winds > Surface Winds > **Wind Tendency** Atmospheric Winds > Upper Level Winds > **Wind Tendency** Atmospheric Winds > Upper Level Winds > **Wind Profiles**
Reviewer Feedback	"Wind Tendency and Wind Profiles should be Wind Speed Tendency (what about Wind Direction Tendency?) and Wind Speed (or Velocity) Profiles."
GCMD Response	We agree with recommendation. Rename keywords: Atmospheric Winds > Surface Winds > ~~**Wind Tendency**~~ Atmospheric Winds > Surface Winds > **Wind Speed Tendency** Atmospheric Winds > Upper Level Winds > ~~**Wind Tendency**~~ -Atmospheric Winds > Upper Level Winds > **Wind Speed Tendency** Add new keywords: Atmospheric Winds > Surface Winds > **Wind Direction Tendency** Atmospheric Winds > Upper Level Winds > **Wind Direction Tendency** Atmospheric Winds > Wind Profiles > **Wind Speed/Velocity Profiles** Atmospheric Winds > Wind Profiles > **Wind Direction Profiles**

Fifth Comment

Reviewed Keyword Path	Atmospheric Water Vapor > Water Vapor Processes > **Water Vapor**
Reviewer Feedback	"Water Vapor is NOT a Water Vapor Process, it should come under Water Vapor Indicator."

GCMD Response	We agree with recommendation. Move Keyword: Atmospheric Water Vapor > Water Vapor Processes > ~~**Water Vapor**~~ Atmospheric Water Vapor > Water Vapor Indicators > **Water Vapor**

Sixth Comment

Reviewed Keyword Path	Atmospheric Water Vapor > Water Vapor Processes > **Supersaturation**
Reviewer Feedback	"For consistency with the other Water Vapor Indicators, Supersaturation should be an Indicator, NOT a Process."
GCMD Response	We agree with recommendation. Move Keyword: Atmospheric Water Vapor > Water Vapor Processes > ~~**Supersaturation**~~ Atmospheric Water Vapor > Water Vapor Indicators > **Supersaturation**

Seventh Comment

Reviewed Keyword Path	Atmospheric Winds > Wind Dynamics > **Wind Shear**
Reviewer Feedback	"Wind Shear should be split into Vertical and Horizontal Shear."
GCMD Response	We agree but suggest an augmentation. Recommend adding "Vertical Wind Shear" and "Horizontal Wind Shear" as L3 keywords under broader "Wind Shear" keyword. No Change: Atmospheric Winds > Wind Dynamics > **Wind Shear** Add new keywords: Atmospheric Winds > Wind Dynamics > Wind Shear > **Vertical Wind Shear** Atmospheric Winds > Wind Dynamics > Wind Shear > **Horizontal Wind Shear**

E. Amanda Leon (amanda.leon@nsidc.org), NSIDC DAAC

First Comment

Reviewed Keyword Path	General Keyword Comment
Reviewer Feedback	"When variables are changed to now require additional specificity, it may be not be easy to determine that information for data sets using that variable (e.g., documentation may not specify the info, the PI may no longer be available to answer questions)"
GCMD Response	We acknowledge that adding additional keyword specificity can be a burden to metadata providers. One possibility in consideration is to limit keyword reviews to one per year covering no more than 4 Terms. Once a Term is reviewed it will not be reviewed for 3 years. This would lessen the impact of keyword additions/changes on metadata providers. An example is Term "Atmospheric Winds" was reviewed March 2017. It would not be reviewed again until 2020.

Second Comment

Reviewed Keyword Path	Atmospheric Winds > Upper Level Winds > **Wind Profiles**

Reviewer Feedback	"I'm wondering about "Wind Profiles" which was moved from Variable Level 1 to VL2 under "Upper Level Winds". Not being an winds expert, I wonder if the only wind profiles you can have are upper level. What about surface winds? I think there needs to be VL1= Upper Level Winds, VL2 = Wind Profiles, VL3 = NONE"
GCMD Response	Wind Profiles was a tricky keyword to categorize since technically they fall under both "Surface Winds" and "Upper Level Winds". Some profile data sets we looked had a minimum height beyond the threshold that surface weather observations are taken (10 m) and others extended from the ground upwards. Based on the feedback from the keyword review we have decided to keep "Wind Profiles" at Level 1 . You will not have to make any changes to your metadata. No change from existing keywords: Atmospheric Winds > **Wind Profiles**

F. Deborah Smith (dsmith@itsc.uah.edu), GHRC

First Comment

Reviewed Keyword Path	Atmospheric Winds > Local Winds > **Sea-Land Breeze**
Reviewer Feedback	"Sea-land breeze complement is land-sea breeze. Perhaps list as sea-land/land-sea breeze? See the definition which gives only one of the two directions for this wind pattern."
GCMD Response	In order to avoid confusion we suggest a change to the proposed keywords to use the more common terminology of "Sea Breezes" and "Land Breezes" as two different separate keywords. This will cover both the "sea land" and "land sea" directions. Separate proposed keyword into two keywords: Atmospheric Winds > Local Winds > ~~**Sea-Land Breeze**~~ Atmospheric Winds > Local Winds **> Sea Breezes** Atmospheric Winds > Local Winds > **Land Breezes**

Second Comment

Reviewed Keyword Path	Atmospheric Winds > Local Winds > Orographic Winds > **Santa Ana Winds** Atmospheric Winds > Local Winds > Orographic Winds > **Gap Winds** Atmospheric Winds > Local Winds > Orographic Winds > **Mistral Winds** Atmospheric Winds > Local Winds > Orographic Winds > **Chinook Winds**
Reviewer Feedback	"I think individual local orographic winds should not be separately listed as variables, unless you are prepared to add many more of them. For example, the Santa Ana winds are local orographic winds in the LA area. In the SF Bay Area, the same type of wind is known as Diablo winds."
GCMD Response	We agree, “Santa Ana Winds”, “Gap Winds", “Mistral Winds”, "Chinook Winds" are too specific to a region. Keywords are more appropriately keyed in uncontrolled keyword fields Detailed Variable or Ancillary Keyword. Remove proposed new keywords: Atmospheric Winds > Local Winds > Orographic Winds > ~~**Santa Ana Winds**~~ Atmospheric Winds > Local Winds > Orographic Winds > ~~**Gap Winds**~~ Atmospheric Winds > Local Winds > Orographic Winds > ~~**Mistral Winds**~~ Atmospheric Winds > Local Winds > Orographic Winds > ~~**Chinook Winds**~~

Third Comment

Reviewed Keyword Path	Atmospheric Winds > Surface Winds > **Wind Speed/Wind Direction** Atmospheric Winds > Upper Level Winds > **Wind Speed/Wind Direction**
Reviewer Feedback	"Also, why are the wind speed and wind direction not listed separately? Some data sets, such as passive microwave only have wind speed, no direction. Is it ok to list as > atm winds > surface winds > wind speed?"

GCMD Response	We agree, splitting up Wind Speed and Wind Direction will allow users to perform more concise queries. The tradeoff is that existing metadata collections with Wind Speed and Wind Direction will have to be re-keyed. 162 collections with Surface Winds > Wind Speed/Wind Direction and 75 collections with Upper Level Winds > Wind Speed/Wind Direction. Replace keywords with new keywords (See below) Atmospheric Winds > Surface Winds > ~~**Wind Speed/Wind Direction**~~ Atmospheric Winds > Upper Level Winds > ~~**Wind Speed/Wind Direction**~~ Add new keywords: Atmospheric Winds > Surface Winds > **Wind Speed** Atmospheric Winds > Surface Winds > **Wind Direction** Atmospheric Winds > Upper Level Winds > **Wind Speed** Atmospheric Winds > Upper Level Winds > **Wind Direction**

Fourth Comment

Reviewed Keyword Path	Atmospheric Water Vapor > Water Vapor Indicators > **Precipitable Water**
Reviewer Feedback	"Precipitable water is more commonly referred to as total precipitable water (TPW) by the scientific community."
GCMD Response	Agree with recommendation. Rename keyword to more common term: Atmospheric Water Vapor > Water Vapor Indicators > ~~**Precipitable Water**~~ Atmospheric Water Vapor > Water Vapor Indicators > **Total Precipitable Water**

Fifth Comment

Reviewed Keyword Path	Atmospheric Winds > Surface Winds > **Wind Speed/Wind Direction** Atmospheric Winds > Upper Level Winds > **Wind Speed/Wind Direction**
Reviewer Feedback	"There are datasets with U/V wind components, not speed and direction. So atm winds > surface winds > u/v wind components is needed. "
GCMD Response	We agree with recommendation. Add New Keywords: Atmospheric Winds > Surface Winds > **U/V Wind Components** Atmospheric Winds > Upper Level Winds > **U/V Wind Component**

Sixth Comment

Reviewed Keyword Path	Atmospheric Winds > Wind Indices > **Wind Chill**
Reviewer Feedback	"I have issue with wind chill as a wind keyword instead of a temperature."
GCMD Response	We agree with recommendation. Remove: Atmospheric Winds > Wind Indices > ~~**Wind Chill**~~ Re-key existing records (10 records) with: Atmospheric Temperature > Atmospheric Temperature Indices > **Wind Chill Index**

G. Alison Boyer and Les Hook (boyerag@ornl.gov), ORNL

First Comment

Reviewed Keyword Path	General Keyword Comment
Reviewer Feedback	"The exact term may be called a Level 1 in one part of the GCMD and level 2 in another part. This leads to confusion."
GCMD Response	While it is true that a keyword can appear in different places in the GCMD Keyword list each keyword is unique based on its relationship to its broader and/or narrower related keywords. In addition each keyword is assigned a unique identifier (UUID) which ensures it uniqueness.

Second Comment

Reviewed Keyword Path	General Keyword Comment
Reviewer Feedback	"We feel that the terms that were added are good additions."
GCMD Response	Thank you

H. Gao Chen (gao.chen@nasa.gov), NASA LARC

First Comment

Reviewed Keyword Path	General Keyword Comment

Reviewer Feedback	"I felt it is more logical to describe the atmospheric water starting from its physical state, i.e., water vapor and condensed water. The latter can also be referred as cloud water. This is my attempt to organize keywords/variables in this way (See Table Below). Some entries listed in the spreadsheet are too specific and can be organized under the categories in the attached table. For example, the water vapor profiles are just one type of the measurement data, not a different physical quantity to me. I am not an expert on atmospheric water and probably missed some important entries." "I believe we should consult the water measurement and modeling community before we finalize these keywords."
GCMD Response	Your suggestion for organizing the keywords starting from its physical state is an interesting approach. The GCMD's approach is different in that the keywords are categorized by the type of keyword as opposed to its physical state (Water Vapor Indicators, Water Vapor Processes, Water Vapor Profiles, Water Vapor Indices). We will explore your suggestions following the release of the keywords. Until then we would like to invite you to post your suggestion on the Keyword Community Forum. The forum provides keyword users and metadata providers with an area for discussion of topics related to the GCMD Keywords. Keyword Forum link: https://earthdata.nasa.gov/gcmd-forum

Atmospheric water organized from its physical state

Variable Level 1	Variable Level 2	Variable Level 3	Variable Level 4
Water Vapor	Water Mixing Ratio	Volumetric Mixing Ratio	
	Water Mixing Ratio	Mass Mixing Ratio	
	Humidity	Relative Humidity	RH over water
		Relative Humidity	RH over ice
		Absolute Humidity	
		Specific Humidity	
	Dew/Frost Point Temperature		
Condensed Water	Liquid Water Content		
	Liquid Water Content	Precipitable Water	
	Ice Water Content		
	Ice Water Content	Precipitable Water	
	Condensed Water Content		
Water Process	Condensation		
	Evaporation		
	Sublimation		
	Freezing		

Second Comment

Reviewed Keyword Path	Atmospheric Water Vapor > Water Vapor Indicators > **Saturation Mixing Ratio**
Reviewer Feedback	"Also, saturation mixing ratio is a function ambient temperature, not related to actual water vapor content."
GCMD Response	We agree with recommendation. Remove proposed new keyword: Atmospheric Water Vapor > Water Vapor Indicators > ~~**Saturation Mixing Ratio**~~

Third Comment

Reviewed Keyword Path	Atmospheric Water Vapor > Water Vapor Indicators > **Saturation Deficit** Atmospheric Water Vapor > Water Vapor Indicators > Dew Point Temperature > **Dew Point Depression**
Reviewer Feedback	"The saturation deficit or dew point deficit are indirect measures of the atmospheric water vapor content."
GCMD Response	We agree with recommendation. Remove proposed new keywords: Atmospheric Water Vapor > Water Vapor Indicators > ~~**Saturation Deficit**~~ Atmospheric Water Vapor > Water Vapor Indicators > Dew Point Temperature > ~~**Dew Point Depression**~~

I. John Scialdone (jscialdo@ciesin.columbia.edu), SEDAC

First Comment

Reviewed Keyword Path	Atmospheric Winds > Wind Dynamics > **Convergence/Divergence**
Reviewer Feedback	Recommends to split Convergence/Divergence into separate Variable Level 2 Words (e.g. Convergence, Divergence)
GCMD Response	We agree with recommendation. Separate existing keywords into two keywords: Atmospheric Winds > Wind Dynamics > ~~**Convergence/Divergence**~~ Atmospheric Winds > Wind Dynamics > **Convergence** Atmospheric Winds > Wind Dynamics > **Divergence**

Second Comment

Reviewed Keyword Path	Atmospheric Winds > Local Winds > **Mountain-Valley Breeze**
Reviewer Feedback	Recommends to split Mountain-Valley Breezes into separate Variable Level 3 Words (e.g. Mountain Breezes, Valley Breezes)
GCMD Response	We agree with recommendation. Separate proposed keyword into two keywords and make plural: Atmospheric Winds > Local Winds > ~~**Mountain-Valley Breeze**~~ Atmospheric Winds > Local Winds **> Mountain Breezes** Atmospheric Winds > Local Winds > **Valley Breezes**

Third Comment

Reviewed Keyword Path	Atmospheric Winds > Local Winds > **Sea-Land Breeze**
Reviewer Feedback	Sea-Land Breeze into separate Variable Level 3 Words (e.g. Sea Breezes, Land Breezes - make the Breeze plural)

GCMD Response	We agree with recommendation. Separate proposed keyword into two keywords and make plural: Atmospheric Winds > Local Winds > ~~**Sea-Land Breeze**~~ Atmospheric Winds > Local Winds **> Sea Breezes** Atmospheric Winds > Local Winds > **Land Breezes**

Fourth Comment

Reviewed Keyword Path	Atmospheric Winds > Wind Dynamics > **Convergence/Divergence**
Reviewer Feedback	Recommends to split Convergence/Divergence into separate Variable Level 2 Words (e.g. Convergence, Divergence)
GCMD Response	We agree with recommendation. Separate proposed keyword into two keywords and make plural: Atmospheric Winds > Wind Dynamics > ~~**Convergence/Divergence**~~ Atmospheric Winds > Wind Dynamics > **Convergence** Atmospheric Winds > Wind Dynamics > **Divergence**

Lessons Learned From Review

i. Response rate for the review (66%) was good but could be better.
    1. Suggestion: Extend review period to 30 days
ii. Reviewers were not able to view other reviewers' questions and feedback.
    1. Suggestion: Allow reviewers to access wiki page where reviewers' feedback is compiled
iii. Some reviewers had questions regarding the process for updating affected metadata.
    1. Suggestion: Include this information in future review materials
iv. The specific questions on the Google form were effective at soliciting informative answers to proposed keyword changes.
    1. Suggestion: Continue to include these specific questions in future reviews